

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT T. RASMUSSEN and SURJIT S. CHADHA

Appeal No. 1999-0541
Application No. 08/599,436¹

ON BRIEF

Before JERRY SMITH, DIXON and SAADAT, Administrative Patent Judges.
SAADAT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the Examiner's final rejection of claims 5, 7, 13, 15 through 18 and 22 through 26, which are all of the claims pending in this application.

We reverse and enter a new ground of rejection under 37 CFR § 1.196(b).

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to Appellants, in conventional field emission displays, a large number of secondary electrons are created within the phosphor screen due to reflection or scattering of incident electrons and charge build up on the phosphors (specification, page 5). Some of the high energy electrons escape back into the vacuum and can apparently lead to a shift in the surface potential of the phosphor causing diminished light output and unstable emission (specification, pages 5 & 6). Appellants' invention provides for a display having reduced threshold voltage by surrounding the phosphor regions with a matrix comprised of conductive or metallic particles (specification, page 9).

Representative independent claim 13 is reproduced as follows:

13. A field emission display comprising:

a cathode having a number of emitters for emitting electrons, and

a faceplate screen having:

a substrate,

a conductive layer formed over the substrate,

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The prior art references of record relied upon by the Examiner in rejecting the appealed claims are:

Kobale et al. (Kobale)	4,325,002	Apr. 13, 1982
Brodie et al. (Brodie)	5,063,327	Nov. 5, 1991
Ikeda	5,378,963	Jan. 3, 1995

Claims 5, 7, 13, 14², 16, 17 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Brodie in view of Kobale.

Claims 22 through 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kobale.

Claims 15 and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Brodie in view of Kobale and Ikeda.

Rather than reiterate the conflicting viewpoints advanced by the Examiner and Appellants regarding the above-noted rejections, we make reference to the answer (Paper No. 21, mailed September 18, 2001)³ for the Examiner's complete reasoning and the appeal brief (Paper No. 14, filed April 1, 1998) for Appellants' arguments thereagainst.

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OPINION

In rejecting claims under 35 U.S.C. § 103, the Examiner bears the initial burden of presenting a prima facie case of obviousness. See In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). The conclusion that the claimed subject matter is obvious must be supported by evidence, as shown by some objective teaching in the prior art or by knowledge generally available to one of ordinary skill in the art that would have led that individual to combine the relevant teachings of the references to arrive at the claimed invention. See In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

Furthermore, the Examiner must also produce factual basis supported by teaching in a prior art reference or shown to be common knowledge of unquestionable demonstration, consistent with the holding in Graham v. John Deere Co., 383 U.S. 1 (1966). Our reviewing court requires this evidence in order to establish a prima facie case. In re Piasecki, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984); In re Cofer, 354 F.2d 664,

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In re Lee, 277 F.3d 1338, 1344, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002).

Appellants recognize the Examiner's reliance upon Brodie for teaching the basic structure of a field emission device and on Kobale for disclosing the conductive black matrix. However, Appellants argue that any change in the order of the substrate, conductive layer and the black matrix of Kobale would be contrary to its teaching related to the use of the black matrix contrasting layer as a mask (brief, pages 3 & 4). In particular, Appellants assert that Kobale, in column 5, describes the process by which parts of the contrasting border layer is etched away to allow the formation of a plurality of recesses prior to the formation of the conductive layer (brief, page 4). Appellants conclude that rearranging the structure of Kobale in order to incorporate a black matrix layer on the conductive anode layer of Brodie is not prima facie obvious since Kobale's order of the layers is significant and results in a specific process for a specific structure (id.).

argues that shifting the order of the black matrix layer and the conductive layer would not modify the operation of the resulting device (answer, page 7).

As the Examiner and Appellants concede, Brodie teaches a basic structure of a flat panel display of the field emission cathode type (Fig. 4 and col. 4, line 61 through col. 5, line 20). On the other hand, a review of Kobale reveals that the reference relates to a luminescent display screen wherein the individual luminescent dots are separated from one another by a matrix of contrasting layer (col. 1, lines 6-11). Kobale teaches that a conductive layer covers both the recesses in the substrate and the contrasting border layer that are formed on the land areas between recesses formed in a substrate (col. 3, lines 44-54). We further find that the Kobale reference discloses a plurality of functions for the contrasting border layer such as separating the individual luminescent points, improving color contrast, masking the substrate during the application of the luminescence material into the recesses and functioning as a

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recesses in order to effectively function as intended by the reference.

Based on our findings above, we agree with Appellants that the contrasting border layer of Kobale cannot simply be formed over the conductive layer if it is still to function as an etching mask during the formation of the recesses. We remain unpersuaded by the Examiner's arguments that changing the order of the layers would not modify the operation of the device since Kobale requires formation of the contrasting border layer over the substrate, not over the conductive layer. This arrangement is necessary so that the contrasting border layer can fulfill its intended functions such as masking the substrate and conducting potential carrier absent a separate anode layer.

We also disagree with the Examiner that certain aspects of the display panel of Kobale can be combined with Brodie.

As the Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art

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1127 (Fed. Cir. 1984). The court further reasons in Karsten Mfg. Corp. v. Cleveland Gulf Co., 242 F.3d 1376, 1385, 58 USPQ2d 1286, 1293 (Fed. Cir. 2001) that for an invention to be obvious in view of a combination of references, there must be some suggestion, motivation, or teaching in the prior art that would have led a person of ordinary skill in the art to select the references and combine them in the way that would produce the claimed invention.

Therefore, we remain unpersuaded by the Examiner's arguments that one of ordinary skill in the art would have incorporated Kobale's conductive black matrix in the display of Brodie in any way other than over the substrate before the conductive layer. In that regard, while the basic elements of a field emission display and a contrasting border layer are taught by Brodie and Kobale respectively, the combination of prior art fails to teach or suggest phosphors and a black matrix formed on the conductive layer, as recited in claim 13. Accordingly, we do not sustain the 35 U.S.C. § 103 rejection of independent claim 13, as well as

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with Appellants' arguments (brief, pages 4 & 5) that Kobale fails to teach an opaque matrix over the conductive layer wherein luminescent material is formed in regions defined by the matrix. Therefore, 35 U.S.C. § 103 rejection of independent claim 22 over Kobale is not sustained. We also do not sustain the Examiner's 35 U.S.C. § 103 rejection of claims 23 through 26⁴ which all depend from claim 22 and recite additional features.

Lastly, with respect to the Examiner's 35 U.S.C. § 103 rejection of claims 15 and 18 over Brodie in view of Kobale and Ikeda, we note that as previously discussed, we found no teaching in Brodie and Kobale that would have suggested the claimed matrix formed over the conductive layer. Additionally, our review of Ikeda confirms that the Ikeda merely pertains to a field emission display having an operating voltage of 300 volts and provides no teaching or suggestion that would have overcome the deficiencies of Kobale related to forming the contrasting border layer over the conductive layer. Accordingly, the Examiner's rejection of claims 15 and 18 under 35 U.S.C. § 103 over Brodie in view of

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CONCLUSION

In view of the foregoing, the decision of the Examiner rejecting claims 5, 7, 13, 15 through 18 and 22 through 26 under 35 U.S.C. § 103 is reversed.

We make the following new ground of rejection for claim 13 under 35 U.S.C. § 102 as anticipated by Levine⁵ pursuant to 37 CFR § 1.196(b). We only consider independent claim 13 but encourage the Examiner to consider other claims for possible rejections under Levine alone or in combination with other prior art.

Claim 13 is rejected under 35 U.S.C. § 102(e) as anticipated by Levine. Levine teaches in figures 2 and 3, a field emission device including a cathode (emitter plate 12) and a face plate screen (anode plate 40) as recited in Appellants' claim 13. Levine specifically teaches an anode plate comprising "a substrate" as layer 42 and "a conductive layer formed over the substrate" as layer 46 (col. 5, lines 35-39). Levine further teaches "phosphors formed on the conductive layer" as regions

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layer and defining areas of phosphors on the screen" as opaque barrier structure layer 48 (col. 5, lines 41-55). Additionally, Levine discloses that the insulating material of barriers 48 may comprise dielectric stack of alternating layers of $\text{Cr}_2\text{O}_3/\text{Cr}$ and Si/SiO_2 (col. 6, lines 21-26). Based on the existence of Cr in barrier layer 48, Levine shows that the black matrix, which is formed on the conductive layer, includes Cr and therefore, teaches the limitation of "the black matrix including conductive particles."

As discussed above, Levine teaches all the limitations of independent claim 13. Accordingly, claim 13 is rejected under 35 U.S.C. § 102 as anticipated by Levine.

In addition to reversing the Examiner's decision rejecting the claims, this decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b). 37 CFR § 1.196(b) provides that "[a] new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of

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(1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner. . . .

(2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record. . . .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

REVERSED
37 CFR § 1.196(b)

JERRY SMITH)	
Administrative Patent Judge)	
)	
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)	
)	BOARD OF PATENT
JOSEPH L. DIXON)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES

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